

OBJECTIVE 14: IMPLEMENTATION OF PROTECTIVE ACTIONS - USE OF KI FOR EMERGENCY WORKERS, INSTITUTIONALIZED INDIVIDUALS, AND THE GENERAL PUBLIC

OBJECTIVE

Demonstrate the capability and resources to implement potassium iodide (KI) protective actions for emergency workers, institutionalized individuals, and, if the State plan specifies, the general public.

INTENT

This objective is derived from NUREG-0654 which provides that OROs should have the capability to provide radioprotective drugs for emergency workers, institutionalized individuals, and the general public within the plume pathway emergency planning zone (EPZ) for whom immediate evacuation may not be feasible, very difficult, or significantly delayed. While it is necessary for State and local governments to have the capability to provide KI to emergency workers and institutionalized individuals, the provision of KI to the general public is a State option, reflected in ORO plans. Provisions should include the availability of adequate quantities, storage, and means of the distribution of radioprotective drugs. (See evaluation criteria from Planning Standards E., J., and N.)

Federal policy on the distribution of KI is provided in the Federal Register notice dated July 24, 1985, entitled Federal Policy on Distribution of Potassium Iodide Around Nuclear Power Sites for Use as a Thyroidal Blocking Agent.

When KI is ingested before exposure to radioiodine, it effectively reduces accumulation of radioiodine in the thyroid gland by 90% or more. This reduction can be achieved if KI is administered (130 milligrams for adults, 65 milligrams for infants) before or immediately after exposure to radioiodine and treatment continues for at least 48 hours beyond the time of last exposure. If KI is not administered until four hours after exposure, the thyroid dose reduction is approximately 50%. Primary radiation exposures of concern to emergency workers are:

- o whole body external exposure to gamma radiation from airborne particulates, gases, and particulate radioactivity deposited on the ground and
- o internal thyroid exposure from inhalation of radioiodines.

DEMONSTRATION CRITERIA

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CRITERION

- J.10.e.,f. 1. KI is made available once a decision to recommend use of KI is made. Appropriate record keeping of the administration of KI for emergency workers and institutionalized individuals (not for the general public) is effected.**

Explanation

OROs should demonstrate the capability to make KI available to emergency workers, institutionalized individuals, and, where provided for in the State plan, to members of the general public. OROs should demonstrate the capability to accomplish distribution so that KI is available to those who should take it when it needs to be taken. KI may be distributed either before or after the State's decision to administer KI, depending upon procedures set forth in the ORO plans. Organizations should have the capability to develop and maintain lists of emergency workers and institutionalized individuals who have received and ingested KI, including documentation of the date and time they were instructed to ingest KI and the dosage administered. When recommended by a State health official to administer KI, its use by emergency workers, institutionalized individuals, and the general public is voluntary.

Personnel trained to record the administration of KI to institutionalized individuals should be designated (unless those individuals are already at the institutions). Supplies of KI should be allocated but need not be dispatched in the exercise.

Extent of Play

Under this criterion, the transportation and distribution of KI may be simulated by physical distribution of a substitute item (e.g., empty pill bottles, candy, or slips of paper) to emergency workers. Trained personnel and KI supplies should be allocated for KI distribution to institutionalized individuals (unless KI stocks and trained personnel are already at the institution) but need not be actually dispatched in the exercise. For States planning to distribute KI to the general public, the logistics of this operation should be discussed but no actual distribution is necessary. Available supplies of KI should be within the expiration date indicated on KI bottles or blister packs. As an alternative, a letter from the Department of Health and Human Services/Food and Drug Administration should be available that documents a formal extension of the KI expiration date.

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CRITERION

- J.10.e.,f. 2. Sufficient quantities of KI are available for emergency workers, institutionalized individuals, and, if the State plan specifies, members of the general public.**

Explanation

Responsible OROs should demonstrate that they have the capability to maintain inventories of KI sufficient for use by emergency workers, institutionalized individuals, and, where stipulated by the State plan, members of the general public within the plume pathway EPZ.

Responsible OROs should demonstrate that the supply of KI available is adequate to meet projected needs of emergency workers as indicated on rosters, and institutionalized individuals as indicated in capacity lists for facilities. In States that plan to provide KI to the general public under certain conditions, OROs should demonstrate that the KI supply is sufficient for the EPZ population that may be advised to take KI.

Extent of Play

Quantities of KI available and storage location(s) should be confirmed during exercises through one of the following methods:

- o physical inspection at central storage location(s) such as emergency operations center(s) (EOC) or institutions or
- o documentation by up-to-date inventory sheets identifying the quantity and storage location(s).

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3. Appropriate instructions are available for those advised to take KI.

Explanation

Responsible OROs should demonstrate the capability to formulate appropriate instructions on the use of KI for incorporation into messages for the Emergency Broadcast System and other means of primary notification in ORO plans for the general public, emergency workers, and institutionalized individuals and news releases. These instructions/messages should include information on which groups of people are advised to take KI, the purpose of taking KI, the dosage and time period during which it should be taken, information on location(s) where KI can be obtained or how it will be distributed, and possible side effects which can result from the use of KI. OROs should demonstrate the capability to disseminate this information in time to ensure that those for whom the messages are intended will receive instructions prior to the time KI should be taken.

Extent of Play

All activities associated with this criterion should be performed as they would be in an actual emergency.

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4. All activities described in the demonstration criteria for this objective are carried out in accordance with the plan, unless deviations are provided for in the extent-of-play agreement.

Explanation

Responsible OROs should demonstrate the capability to follow policies, implement procedures, and utilize equipment and facilities contained in their plans and procedures. OROs should demonstrate that they can follow sequences outlined in the various procedures and perform specified activities, as necessary.

Extent of Play

Under this criterion, all activities should be carried out as specified in the plan, unless deviation from the plan is provided for in the extent-of-play agreement.

CLARIFICATION OF TERMS

Administer, as used in this objective, refers to the oral ingestion of KI.

Emergency worker refers to an individual who has an essential mission within or outside the plume exposure pathway emergency planning zone to protect the health and safety of the public who could be exposed to ionizing radiation from the plume or from its deposition.

Emergency workers may include the following: radiation monitoring personnel; traffic control personnel; evacuation vehicle drivers; fire and rescue personnel, including ambulance crews; medical facilities personnel; emergency operations center personnel; personnel carrying out backup alerting procedures; and essential services or utility personnel.

Institutionalized individuals are individuals who reside in institutions, such as nursing homes or prisons, and may need to depend on others for assistance with protective actions. Institutionalized individuals may or may not have special needs.

KI (potassium iodide) is a prophylactic drug that can be used effectively to block the uptake of radioiodines by the thyroid gland.

Timely, as used in this objective, refers to distributing KI early enough to achieve optimum benefits, given simulated scenario events and exercise play.